Nesting Season Bird Survey at Proposed Wind Turbine Site on Northwest Island, Newfoundland and Labrador

Prepared by

for

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by

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Introduction

A nesting season bird survey was conducted by LGL Limited (LGL) of St. John's at the site of Newfoundland and Labrador Hydro's (Hydro) proposed wind turbine generators on Northwest Island, adjacent to the town of Ramea. Following consultations with Environment Canada (Canadian Wildlife Service), two survey techniques were chosen from *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds* (CWS 2006): (1) an area search and (2) transects of fixed width. In addition, Richard Northcott, a local resident who has been birdwatching in that area for several decades, was interviewed to gather additional data on bird distribution on Northwest Island. Mr. Northcott has monitored the potential effects on birds that the six existing wind turbines have created since their construction approximately three years ago.

The study area consisted of about 15.5 ha encompassing the sites of the proposed wind turbines. This study area was roughly bounded by the westernmost houses of Ramea and a Hydro generating station on the east side, the high voltage electrical transmission line and a hillside on south side, the coastline on the west side, and the helicopter pad and the municipal waste disposal incinerator on the north side.

The topography in the study area is relatively level or gently sloping, and one to two metres above sea level. The habitat within the study area consists of open peatland bog and maritime coastal barren vegetation dominated by sphagnum moss, crowberry, lichens, grasses, Labrador tea, bakeapple, lesser blue flag iris, a few small pools of water, and four small clusters of stunted spruce trees, the largest patch of trees being approximately 1.5 m in height and 2.0 m in diameter. Three houses on the eastern edge of study area have maintained turf and a variety of ornamental deciduous shrubbery. A narrow paved road leading from the town to a cemetery near the coast runs through the northern part of the study area, with two small unpaved side roads leading from the cemetery road to the town's waste disposal incinerator and to a picnic table. The coastline is a mixture of exposed bedrock and shingle beach. A walking trail runs close to the coastline on the western side of the study area. Immediately to the east of the study area there is a small marshy pond located adjacent to the waste disposal site.

Methods

An area search of the study area was carried out by two field technicians (P. Linegar and J. Selno) skilled in the identification of birds by sight and sound. The area search was conducted on 25 June 2007 between hours of 05:40-08:40, 10:30-11:00, 17:00-18:00, and 19:20-21:00 h. The numbers and species of birds encountered were recorded and breeding evidence was classified into the categories used in breeding bird atlas projects in Ontario and the Maritime Provinces.

Four parallel "transects" were marked as a means of quantifying the abundance of birds utilizing the study area from year to year. The baseline (transect line 2) ran from the northernmost utility pole adjacent to the entrance to the Hydro generating station on a bearing of 258° to the coastline. Two parallel transect lines were measured at 100 m intervals north of the baseline using a 61-m fiberglass tape measure and a compass, and one transect was measured 100 m south of the baseline. Between 06:00 and 07:00 hrs on 26 June, the same field workers walked the transects and all birds sighted or heard singing within the study area were identified to species and recorded.

Weather conditions on 25 and 26 June were overcast with intermittent fog patches and light drizzle, winds southeast 10 km/h, and temperatures 12-14° C.

Results and Discussion

Breeding bird densities and diversity within the study area were low (see Table 1) and reflect those in similar maritime coastal barren ground and peatland habitats in south-coastal Newfoundland. The most abundant breeding bird was the Savannah Sparrow. At least four pairs were found carrying food to sites within the study area thus confirming breeding, and two or three other pairs utilize the area for foraging and possibly nesting. A Least Sandpiper exhibited distraction displays and agitated behavior, which confirms breeding. One or two Spotted Sandpipers were seen regularly along the coastline in the study area indicating probable breeding. A single individual adult male Swamp Sparrow sang persistently during the survey work in suitable habitat for nesting. Although this behavior is only indicative of possible breeding, this species is abundant nester on Northwest Island.

Non-breeding Birds: Herrings Gulls and Great Black-backed Gulls were the most common species, although neither species nests within the study area (Table 1). Single individuals or groups of two or three regularly flew over the survey area (approximately one individual every three minutes) en route to and from the coast, Ramea, the waste disposal site, the helicopter pad, and a nearby small pond. The total number of gulls present at any given time on the ground within the study area ranged from three to 14 individuals, with most of these birds either loafing on the helicopter pad or bathing in the nearby small pond. Approximately 200 Herring Gulls and 25 Great Black-backed Gulls were found at Ramea Harbour and other nearby locations on Northwest Island. Several small inshore boats fish out of Ramea Harbour and the fishing activity is likely the reason for the concentration of gulls in that harbour and around the study area. The town's waste disposal site is an incinerator located on the east side of the study. Garbage collection takes place on Tuesdays, and the refuse is deposited directly into the incinerator. The incinerator attracted no more than five gulls at a time during this study, and frequently none were present at all. The facility appeared very clean, suggesting that the facility has effective measures to prevent garbage spillage outdoors. This may be the reason that so few gulls, ravens, or crows were attracted to the incinerator site. The local fish processing plant closed two years ago, which probably reduced the number of gulls using in the area.

Great Black-backed and Herring Gulls probably breed on Northwest Island and elsewhere in the Ramea Islands. Ring-billed Gull, Double-crested Cormorant, and Great Cormorant were seen outside the study area and probably nest in small numbers on nearby islands as well. A few pairs of Black Guillemot nests on the coast of Ramea Island west of the study area (R. Northcott, pers. comm.).

Table 1. Species and Numbers of Individual Birds Recorded in the Study Area

			Survey Type	
Species	**Scientific Name**	**Habitat**	**Area Search (25 June)**	**Transects (26 June)**
Merlin	*Falco columbarius*	W, B, T	1	0
Killdeer	*Charadrius vociferus*	T	1	0
Spotted Sandpiper *	*Actitis macularius*	C	1	1
Least Sandpiper *	*Calidris minutilla*	C	1	0
Herring Gull	*Larus argentatus*	W	28	8
Great Black-backed Gull	*Larus marinus*	T, O	2	1
Common Tern	*Sterna hirundo*	C	0	1
American Crow	*Corvus brachyrhynchos*	T, C, O	2	3
Common Raven	*Corvus corax*	T, C, O	1	5
American Robin	*Turdus migratorius*	W, B, T, O	2	0
European Starling	*Sturnus vulgaris*	T, B	2	0
Yellow Warbler	*Dendroica petechia*	T	1	0
Savannah Sparrow*	*Passerculus sandwichensis*	W, B, T	12	12
Swamp Sparrow*	*Melospiza georgiana*	W, B	1	1
Common Grackle	*Quiscalus quiscula*	T	2	0
Purple Finch	*Carpodacus purpurea*	O	1	0

Note: *Evidence for breeding within the study area

Key:
B = barren ground
C = coastline
O = flying overhead
T = town, road or landfill
W = wetland/bog

A few Common Ravens and American Crows were observed regularly in the study area. One pair of ravens nested on a bluff adjacent to the existing wind turbine farm and fledged five young. Both the adults and young visited the waste disposal site from time to time throughout the day. Approximately five crows were also present on a regular basis in and around the town of Ramea, with most or all of these birds making occasional visits to the waste disposal site.

The remaining bird species observed in the study area occurred in very low numbers. A Merlin was seen from time to time on Northwest Island and was observed flying over the study area. A Killdeer landed on an area of exposed gravel near the Hydro facility, and was noted at other locations along

the coast outside the study area. There was no evidence of nesting for either species although both may do so on Northwest Island. Wilson's Snipe, one of which was heard near the study area, probably nest in wetlands on Northwest Island. Two American Robins and one European Starling were seen foraging in open habitat within the study area, and two Yellow Warblers fed around houses on the eastern edge of the study area. These three species nest commonly in the town of Ramea. Several Common Grackles were also present in the town, and two were heard calling around houses located on the eastern edge of the study area. A single Common Tern and a single Purple Finch flew over the study area. Both of these species were found in low numbers elsewhere on the island. Common Tern is not known to presently nest on Northwest Island, but probably nests in small numbers on nearby islands.

Bird species nesting near the study area include Horned Lark on exposed hilltops and House Sparrow in Ramea. Further details on the abundance and distribution of birds on Northwest Island during the nesting season are provided in Appendix 1.

Richard Northcott offered the opinion that the wind turbines that were constructed on the island three years ago have had little negative effect on local birds. The gulls appear to avoid the structures, a pair of Common Ravens nested on a cliff next to the wind turbines, and a pair of Spotted Sandpipers was found nesting beneath one of the turbine structures. During the LGL site visit a pair of European Starlings were nesting inside one of the turbine casings.

In summary, bird use of the site of the proposed wind turbines on 25-26 June 2007 was low. Birds nesting at the site were limited to a small number of pairs of songbirds, mostly Savannah Sparrows, and two pairs of sandpipers, Least and Spotted Sandpipers. Small numbers of gulls loafed on the helicopter pad, bathed in a pond, or flew to and from the incinerator site, Ramea, and the coast. Small numbers of other species foraged occasionally on the site or flew over. However, there was no high traffic corridor over the site.

References Cited

CWS. 2006. Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds. Prepared by Environment Canada and Canadian Wildlife Service, Gatineau, Quebec.

Personal Communication

R. Northcott, Resident

Appendix 1

Annotated List of Bird Observations on Northwest Island, 25-26 June 2007.

Within Study Area

Merlin (*Falco columbarius*): One individual observed on several occasions at different locations on Northwest Island including over the study area. Nesting status on Northwest Island unknown.

Killdeer (*Charadrius vociferus*): One individual observed three times including once on the study area. Nesting status unknown on Northwest Island.

Spotted Sandpiper (*Actitis macularius*): Common breeding species along coastal shorelines with one pair presumed to have nested in the study area.

Least Sandpiper (*Calidris minutella*): One adult in the study area exhibited distraction display and agitated behavior when encountered in boggy peatland habitat in the study area and was considered to have nested near that location due to its behavior. This species likely nests on bog lands at other locations on Northwest Island.

Herring Gull (*Larus argentatus*): Common on Northwest Island with about 200 individuals observed, mostly adults in and around Ramea Harbour. Presumably breeds on Northwest Island and at other sites on the Ramea Islands.

Great Black-backed Gull (*Larus marinus*): About 25 individuals, mostly adults. Presumably nests in small numbers on Northwest Island and elsewhere on the Ramea Islands.

Common Tern (*Sterna hirundo*): Three observations of single individuals. May not breed on Northwest Island although may do so elsewhere on the Ramea Islands.

American Crow (*Corvus brachyrhynchos*): Uncommon. One or two pairs nest on Northwest Island (*fide* R. Northcott).

Common Raven (*Corvus corax*): One pair nested on Northwest Island next to the existing wind turbine facility and fledged five young. One or more of the family group routinely visited the waste disposal site in the study area.

American Robin (*Turdus migratorius*): Common and widely distributed on Northwest Island. Approximately 10 pairs nest around the town of Ramea with one or two individuals visiting the study area to forage for food from time to time.

European Starling (*Starnus vulgaris*): A small group of approximately 30 adults and flying young were in the town of Ramea, and one or two adults foraged in the study area.

Yellow Warbler (*Dendroica petechia*): Fairly common nester in deciduous and mixed growth in the town of Ramea.

Savannah Sparrow (*Passerculus sandwichensis*): Breeds commonly on Northwest Island, including the study area, on open grassy and peatland habitats.

Swamp Sparrow (*Melospiza georgiana*): One singing bird in study area; assumed to have nested. Common nesting species on Northwest Island near coniferous trees adjacent to bogs and peatlands.

Common Grackle (*Quiscala quiscula*): Six to eight individuals representing one or two family groups in the town or Ramea. Formerly a rare nesting species in Newfoundland outside of the farming districts in southwestern Newfoundland, in recent years this species breeding distribution has spread to towns and cities across the island of Newfoundland.

Purple Finch (*Carpodacus purpureus*): Single individuals or pairs heard on several occasions on Northwest Island. Presumably breeds in small numbers around the town of Ramea and in areas of coniferous and mixed forest outside the study area.

Outside Study Area

Common Loon (*Gavia immer*): Three first summer non-breeding individuals observed along the coast west of the study area.

Cormorant (*Phalacrocorax* sp.): Three cormorants not identified to species were seen in flight along coast east of study area. Double-crested (*P. auritus*) or Great Cormorant (*P. carbo*) or both species probably nests on one or more of the nearby offshore islands.

Wilson's Snipe (*Gallinago delicata*): One individual heard calling east of the study area. Presumably breeds in small numbers in wetlands on Northwest Island.

Ring-billed Gull (*Larus delawrensis*): Three observations of single individuals. No evidence of nesting on Northwest Island but may do so at other locations on the Ramea Islands.

Black Guillemot (*Cepphus grylle*): Six sightings of single individuals or pairs on Northwest Island. A few pairs nest on the coast west of the study area near the existing wind turbine facility (fide R. Northcott).

Yellow-bellied Flycatcher (*Empidonax flaviventris*): Not observed, but expected to be an uncommon breeder in areas of coniferous growth on Northwest Island.

Boreal Chickadee (*Poecile hudsonica*): Not detected during surveys on Northwest Island but likely nests in small numbers in forested habitats outside the study area.

Winter Wren (*Troglodytes troglodytes*): Two individuals heard singing in forested habitat west of the study area on Northwest Island. Apparently nests in that area (*fide* R. Northcott)

Ruby-crowned Kinglet (*Regulus calendula*): Not recorded on Northwest Island but likely nests in small numbers outside the study area.

Horned Lark (*Eremophila alpestris*): One heard near the coast east of study area. Presumably nests on exposed hilltops on Northwest Island outside the study area.

Yellow-rumped Warbler (*Dendroica coronata*): Not detected during survey work but likely breeds in small numbers in coniferous forest on Northwest Island.

Blackpoll Warbler (*Dendroica striata*): Not observed but probably uncommon and local nesting species in coniferous forest on Northwest Island.

Northern Waterthrush (*Seiurus noveboracensis*): Not observed but probably uncommon and local nesting species in coniferous and mixed forest on Northwest Island.

Common Yellowthroat (*Geothlypis trichas*): One heard singing several times immediately to the west of the study area. Likely nests in that area and elsewhere on Northwest Island in bog and peatlands bordered by coniferous and mixed forests.

Wilson's Warbler (*Wilsonia pusilla*): Not detected during surveys but likely nests uncommonly in dense shrubby deciduous and mixed coniferous – deciduous growth on Northwest Island.

Fox Sparrow (*Passerella iliaca*): Locally common nesting species in coniferous forest outside the study area.

Song Sparrow (*Melospiza melodia*): Not observed, but two or three pairs nest in the town or Ramea at locations having ornamental shrubbery, lawns and forest edges.

White-throated Sparrow (*Zonotrichia albicollis*): Not observed during visit but likely nests in low numbers on to Northwest Island in coniferous forest.

Dark-eyed Junco (*Junco hyemalis*): Not observed and apparently uncommon during the summer on Northwest Island (fide R. Northcott). May nest in small numbers in coniferous forest or in areas with ornamental shrubbery in the town of Ramea.

House Sparrow (*Passer domesticus*): A resident flock of approximately 20 individuals nest in the town of Ramea.